

The Heterodyne

Newsletter of the West Valley Amateur Radio Association

**January Meeting at the
Red Cross Building
Will Meet in Person
(Also Accessible via Zoom)**

**Cybersecurity and Radios In Space
Kaitlyn Handelman, KN6MAN**

**Wednesday, January 11
Meeting Starts at 7pm
Visitors Are Welcome!**

**Meeting Location:
American Red Cross,
Silicon Valley Chapter
2731 N First Street at Plumeria Dr
(southwest corner) in San Jose**

This month's WVARA meeting will be held in-person at 7pm on Wednesday, January 11, in Meeting Room 3 at the Silicon Valley Chapter of the American Red Cross, 2731 N. First Street at Plumeria Drive (southwest corner) in San Jose. If you haven't been to the Red Cross in a while, "talk-in" is usually available on the Association's repeaters. Best choice would be 2m/220.

Two things to remember:

1) The Red Cross locks the exterior doors at 7pm sharp, so please come a few minutes early in order to get access to the building.

2) We will be in Meeting Room 3 -- about 100 feet from the side door. As a result, late comers who knock on the side door won't be heard from our meeting room. If you are late and need access, you can call my cellphone

WVARA Repeater (W6PIY)		
Band	Frequency	PL
6 Meters	52.580- MHz	151.4 Hz
2 Meters	147.39+ MHz	151.4 Hz
1.25 Meters	223.96- MHz	156.7 Hz
0.70 Meter	441.35+ MHz	88.5 Hz
0.23 Meter	1286.2- MHz	100 Hz

WVARA's club net is on the W6PIY repeaters each Tuesday at 8:30 pm. All repeaters are linked together during the net. The net control script can be found at www.wvara.org in the "On The Air" dropdown.



Kaitlyn Handelman, KN6MAN

(408 636-6172) and someone will come let you in. But please try to arrive before 7pm to avoid this hassle.

To start the new year, we will have a presentation by Kaitlyn Handelman (KN6MAN) on Cyber-security and Radios In Space. Radio transmitters surround us on the ground, in the air, and increasingly in space. Space is the place for amateur radio, telecommunications, and scientific transmissions. Space is awesome, but what could happen if a bad actor decided to attack satellite systems? More importantly, what fun can good actors have exploring satellite transmissions?

Kaitlyn Handelman (KN6MAN) is an offensive security engineer at Amazon where she secures ground, air, and space-based hardware. Kaitlyn has previous experience securing air and space systems at NASA.

BTW, several of us meet for dinner prior to the meeting at 5:45pm nearby at Disn-N-Dash (2551 N. 1st St. San Jose): <https://dishdash.com> Some WVARA members also dine at Panera Bread a few miles further to the south at 503 Coleman Avenue at Autumn Parkway at the San Jose Market Center. Feel free to drop by either location for dinner.

Although we will be meeting in person, Kaitlyn's presentation will also be streamed via Zoom. Zoom instructions have been sent via WVARA reflector and can likewise be obtained by contacting K6EI — his email is available via QRZ.

A Snowy Top Band Adventure

Jim Peterson, K6EI



This was my sixth year doing December's ARRL 160 contest from my cabin at Loon Lake, WA (north of Spokane in Eastern Washington.) Back home in Sunnyvale, I can only dream about putting up crazy-big wire antennas on Top Band. But at the Loon Lake cabin during the winter months when all the neighboring cabins are vacant, I can deploy big wire antennas with total abandon — extending my temporary antennas far beyond my property's boundary. The only catch is that Eastern Washington's weather near the Idaho and Canadian borders in December can be a mixed bag.



The steps to my cabin



I had arrived at the cabin the day after a major snow storm which left a couple feet of snow, which made setting up a challenge. Fortunately, Stan (KC7XE) had lent me a pair of snowshoes which became extremely useful as I deployed my Top Band antennas.

My transmit antennas this year consisted of an inverted-L (75ft vertical, 80ft horizontal) suspended from pine trees. Since this antenna is somewhat longer than $1/4$ wavelength, I used a series capacitor made from RG-8 coax (about 150pF) to bring the antenna to resonance with a feed point impedance of almost exactly 50 ohms. My secondary transmit antenna was an NVIS (Near Vertical Incidence Skywave) dipole up 50ft on a hilltop (effective height ~150ft). The inverted L was my primary transmit antenna and out-performed the dipole at distances greater than ~500 miles. The NVIS dipole performed well for my West Coast contacts.



Here's the feed point for my inverted L with the series capacitor made from RG-8



The radial system under my transmit antenna. (I normally deploy ~50 ground radials under the inverted L, but this year because of the snow I only deployed 25 radials.)

I installed a separate receive antenna consisting of a low dipole (up about 10 feet) which was located 500ft away from most power lines on higher hilltop. I really enjoy using Elecraft's diversity mode with the vertically-polarized transmit antenna going to my left ear and my horizontally-polarized remote receive antenna going to my right ear. It was very cool listening to a weak signal via diversity mode as it would drift back and forth between one ear and the other as a result of propagation.



Two power strips with surge protectors and attached wall warts were a major source of RFI Friday night. Once I unplugged them on Saturday, things improved dramatically!

Major RFI on Friday night (-80dbm) severely limited my QSO count that night. I eventually located a couple power strips in the cabin with built-in surge protectors that were blasting out RFI. Removing those helped a lot. But an apparent secondary noise source was harder to resolve, probably because being out in the woods the local power company doesn't do a very good job of maintaining the power lines and their pole top transformers. As a result, I encountered serious noise on Friday night and again Sunday morning (-87dbm). The noise abated for a while Saturday night and early Sunday (-98dbm), which was when I made more of my East Coast and DX contacts.



The view from my cabin. Bottom line: I had a great time. For the past two decades, I had always operated QRP for this contest, but this year I chose the low power (100 watt) category. I made 265 contacts and finally completed 160 Worked-All-States. 73's de K6EI

Checkins and photos from December's Holiday BBQ/Party will resume next month.

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